

# Coral Reefs Are Invaluable Assets

## *for Food Security, Economic Development and Biodiversity Conservation*

### Coral Reefs Play a Critical Role

Coral reefs and associated mangrove forests play a critical but often undervalued role in the sustainable development options for millions of coastal residents throughout the world. Coastal protection from waves and storm surge, alternative livelihoods based on tourism, and significant food security are but a few of the many ecological services provided by coral reef ecosystems. The most complex ecosystem in the ocean, reefs are renowned for their biodiversity, sheltering more than 800 species of reef-building corals, thousands of species of fishes, and millions of other species. The beauty and diversity of coral reefs are contributing to one of the fastest growing sectors of the global economy - coastal tourism. An estimated one billion people in Southeast Asia, and millions in other regions, depend upon reefs as their major source of protein; millions of others depend on reefs for their livelihoods. However, these precious reef resources are becoming increasingly vulnerable to a combination of direct human impact and the effects of global change.



*Sustainable management of the coastal environment is essential to maintain healthy coral reef systems that benefit local economies as popular tourist destinations.*



*Coral reefs are among the most biologically diverse ecosystems in the world.*

### Global Trends and Emerging Solutions

#### Threats and Impacts to Coral Reefs

Multiple human activities - including poorly planned or sited coastal development, destructive fishing, over-harvesting, and the run-off of sediments and nutrients - have caused the loss of over 25% of the world's coral reefs and severely threaten close to 60% of the remaining reefs. Loss of mangrove forests and seagrass meadows, which are ecologically connected to coral reefs, poses significant threats to these systems. International trade in coral reef animals for the curio, marine aquarium and food trades is increasing and driving overexploitation and destructive fishing practices. More recently, elevated sea surface temperature (SST) has caused "bleaching" and mortality of significant portions of reefs in all regions and seas.

Urgent management actions are needed to reduce stresses to coral reef and coastal ecosystems, preserve the valuable goods and services they provide, and conserve their unique biodiversity. Conservation and sustainable use of reefs may also prevent poverty and loss of well-being among those communities dependent upon reef resources.

#### Role of Governance in Integrated Coastal Management

Successful coral reef and coastal management requires long-term commitment to establishing effective governance by coastal residents and nations over their coastal resources. Two important tools in this endeavor are integrated coastal management (ICM) and marine protected areas (MPAs). The ultimate objective is to achieve meaningful "co-management" of the resource, whereby governments, individuals, and the private sector, acting through their communities, collaborate on the identification of priority needs and the design and implementation of successful management solutions. When such integrated and participatory planning is undertaken at the ecosystem scale, chances are dramatically improved that individual behavior and decisions concerning future development will unfold based on principles of resource stewardship.



## Coral Reefs

Effective ICM and MPA processes are critical, but so are the development and adoption of relevant policy, legal, and institutional tools, and an investment in monitoring and evaluation to provide feedback and sound, scientific information to guide future action.

### Role of Ecological No-take Reserves and Networks of Marine Protected Areas

The establishment of ecological “no-take” reserves and/or multi-purpose marine protected areas can result in early and sustained management dividends. Ecological reserves improve fishery yields and help build and maintain healthy fish populations that, in turn, are integral to the health of coral reef ecosystems. Ecological reserves have proven very effective in the conservation of marine biodiversity and the generation of jobs and revenue through tourism. Establishing networks of marine protected areas is critical for maintaining resource productivity, enhancing resiliency, and ensuring protection of marine and coastal habitats. Such tools, when coupled with ongoing education, enforcement, and income generation schemes, offer the best hope for reducing or eliminating stress on coral reefs, increasing the odds that they can withstand the next bleaching event.

### USAID Coral Reef Activities

Through public and private partners, USAID supports coral reef and mangrove forest conservation activities in over 25 countries. Activities aim to:

- Reduce land-based sources of pollution;
- Address overfishing, destructive fishing, and adverse trade impacts;
- Promote sustainable tourism, including “green” and fair tourism;
- Address coral bleaching and coral diseases;
- Promote environmental awareness and stewardship.

USAID activities support the efforts of the U.S. Coral Reef Task Force and international efforts, such as the International Coral Reef Initiative (ICRI), the Global Programme of Action for the Control of Land-Based Sources of Marine Pollution, and the Convention on the International Trade in Endangered Species (CITES).



*Corals, fish and other coral reef inhabitants benefit from coastal management plans.*



*Mining coral rock and “live rock” for use in construction, marine aquaria and lime production is responsible for coral reef degradation in many parts of the world.*

### Illustrative Examples

- **The Global Conservation Program** is a partnership with six U.S.-based conservation organizations to address the most pressing threats to species-rich land and seascapes around the world. Coral reef projects include: the Eastern Africa Marine Ecoregion in Kenya, Tanzania and Mozambique; Glover’s Reef Seascape in Belize; Meso-American Reef in Mexico, Belize, Guatemala, and Honduras; Wakatobi National Park and Raja Ampat Islands in Indonesia; and Kimbe Bay in Papua New Guinea.
- **The Parks in Peril Program** strengthens protected area management in the Latin America and Caribbean region through ecoregional and site based approaches, such as the protection of critical spawning aggregation sites, no-take reserves, and promoting co-management and sustainable financing schemes.
- **The Regional Environment Program for Central America (PROARCA)** is strengthening regional and transboundary management of coastal and watershed resources in the Gulf of Honduras along the Guatemala/Belize/Honduras borders, the Miskito Coast of Honduras and Nicaragua, and the Amistad Cahuita Rio Canas area of Panama and Costa Rica.
- **The Meso-American Reef Alliance** is promoting economically and environmentally sound management of the reef and the strategic engagement of the private sector, including agribusinesses, fisheries, and tourism.
- **Fisheries Improved for Sustainable Harvest (FISH)** is working with the Government of the Philippines and local communities to implement sound fisheries governance, adopt an ecosystem-based approach to fisheries management, address illegal fishing, promote rule of law, and reduce conflicts and terrorism.